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ABSTRACT

The aim of this study was to investigate some of the learner variables that may have an influence on university academic achievement in a distance versus a conventional education setting. Descriptive and analytical statistics were used to analyze data by using "Pearson r," and "F-test." Results revealed that the university academic achievement for both types of education has been affected significantly by similar variables, including prior high school academic achievement (a positive correlation), prior high school specialization (in favor of science), and university specialization (in favor of science), and that the gender factor (in favor of females) has significantly affected the university academic achievement in a distance education setting. A second finding was that university achievement in both types of education have not been affected significantly by the variables of locus of control, work responsibility, or the university academic level. According to these results, the researcher recommends that university curriculum planners consider courses in science to be compulsory courses regardless of students' specialization. Such courses are expected to force students to use their mental processes deeply during learning, hence, to enhance their academic achievement. Two figures illustrate conditions that affect learners' academic achievement and variables affecting university academic achievement. Contains 15 references. (Author/DLS)

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Variables Affecting University Academic Achievement in a Distance- Versus a Conventional Education Setting

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Abstract

The aim of this study was to investigate some of the learner variables that may have an influence on the University academic achievement in a distance- versus a conventional education setting.

Descriptive and analytic statistics were used to analyze the data of this study by using "Pearson r", on the one hand, and "F-test", on the other. They revealed the following results:

1- The university academic achievement at both types of education - distance and conventional - have been affected significantly by similar variables. They were:

a) Prior high school academic achievement (It has a significant positive correlation with the University academic achievement),
b) Prior high school specialization (It was in favor of science specialization.), and
c) University specialization (It was also in favor of science specialization).

The gender factor has just affected significantly the university academic achievement in a distance education setting (It was in favor of females).

2- But the University academic achievement in both types of education have <u>not</u> been affected significantly by these variables:

a) the locus of control,
b) work responsibility,
c) and the university academic level.

According to these results, the researcher recommends the university curriculum planners consider courses in science to be compulsory courses regardless of student's specialization. Such courses are expected to force students to use their mental process deeply during learning, hence, to enhance their academic achievement.

Further analysis was done in this research, thus more recommendations were suggested.

Introduction

At any university, administrators always try to maintain a high quality of education. One measure which is still commonly used to asses such quality is academic achievement.

University academic achievement either in a distance or a conventional education setting is affected mainly by two groups of variables as classified by "Robert Gagne". They are: 1) the internal variables, and 2) the external variables (See, Gagne, 1977; Gagne, Briggs, & Wager, 1992).

The internal variables are theoretically related to the learner's characteristics such as intelligence, prior achievement, prior knowledge, aptitudes, attitudes, motivation, locus of control, field dependence and field independence, learning style, work responsibility, socioeconomic class, etc.; Whereas the external variables are basically related to the environment in which learning takes place, such as the physical conditions (i.e., spaces/buildings, halls, studios, galleries, auditoriums), teacher's competency, delivery systems, administration system, planning and designing system, curriculum, mass media, educational aids, budget, etc., (e.g., Barry, 1992; Kaye, and Rumble, 1991; Mayton, 1989; Rezabek, 1992; Sammons, 1988; Verduin & Clark, 1991) (See Figure 1).

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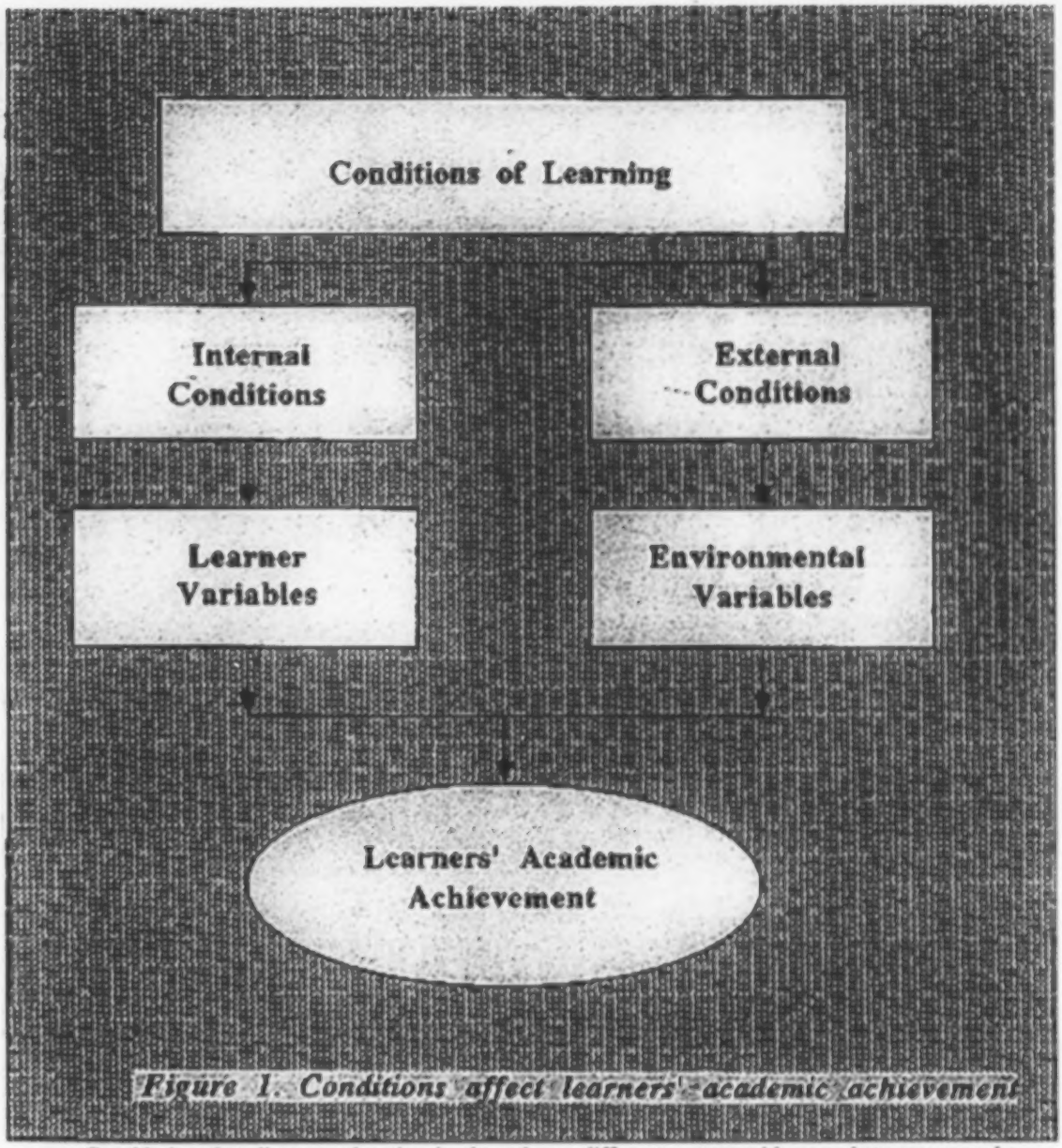

Figure 1. Conditions affect learners' academic achievement

Considering that distance education is altogether a different system with more heterogeneous learner characteristics, and a different delivery system from the conventional one (Wilson, 1991), we assume that the academic achievement in a distance education setting will be affected differently compared to that of education in a conventional one.

Some previous studies tested this hypothesis and investigated the effectiveness of distance versus conventional education in terms of students' academic achievement and their attitudes towards learning. Ritchie and Newby (1989), for example, compared two groups of undergraduates: one group studied a course in a conventional education setting, via lecture, and the other group studied the same course in a distance education setting, via television. They found that the first group of conventional education had better achievement than the second group of distance education. They also found that the students in the conventional education setting enjoyed the course more than their counterparts who learned at a distance, via television.

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Smith and McNelis (1993) supported the above results when they took a class of 16 graduates who were studying a requirement course in a distance setting and compared them with the same level class consisting of 12 graduates studying the same course in a conventional education setting. At the end of the course, the assessment of academic achievement showed that the performance of students in a distance education setting was significantly lower than that of their counterparts in a conventional education setting. In addition, the attitudes of distance education students toward learning were negative.

In contrast, Chu and Schram (1976) found that students who learned by television at a distance performed significantly better than their counterparts who learned the same course by lecture in a conventional education setting. They also found that students, at a distance, especially the young students, preferred television to lecture as a tool of instruction. Horowita (1979) also found that students' attitude toward distance education was more positive than toward the conventional one (See, Feasley, 1982).

On the other hand, Haynes & Dillon (1992) failed to find any significant differences in the academic achievement of students who studied at a distance and of their counterparts who studied in a conventional education setting, or in their attitudes towards learning.

By looking at another variable, Field Dependent- versus Field Independent learning, the literature generally indicated that most of distance education learners were field independents and had a preference for the solitary situations and self-defined goals, strategies and reinforcement, and were associated with the idea of self-directness, and autonomy; whereas most of the conventional education learners were field dependents who had a preference for the external controls and more structured environment (See, Rotter, 1966; Wilson, 1991, p.43).

Wilson (Ibid.) had also summarized the results of several research projects related to other characteristics of distance learners compared to conventional ones. He found that distance learners were generally older than the conventional learners, and their age ranged between 20-40, at the average of 37 years. Most of them were professional people who went to school part-time; 66% of them were employed full-time. Most of them were women; however, this seemed to be a trend only in more developed countries. Wilson also found that 84% of distance learners were white, and 75.5% were married. He found that 41% of distance learners were at a distance because going to on-campus classes conflicted with their work, or conflicted with their leisure time (12%), and 51% of them chose distance education to minimize travel, and others because of social, economic or geographical reasons.

From the above results, we can say that the characteristics of learners are clearly different in a distance- compared to a conventional education setting; hence, the academic achievement varies from one situation to another. Since we, in Palestine, are experiencing a new system of education, distance education, and are careful to secure a high quality of education in this new system, the author of this study intended to investigate some of the learner variables that might affect the academic achievement at a distance-compared to a conventional education setting. The variables investigated in this study were: the learner's gender, locus of control, prior high school academic achievement, prior high school specialization, university specialization, university academic level, and work responsibility (See, Figure 2).

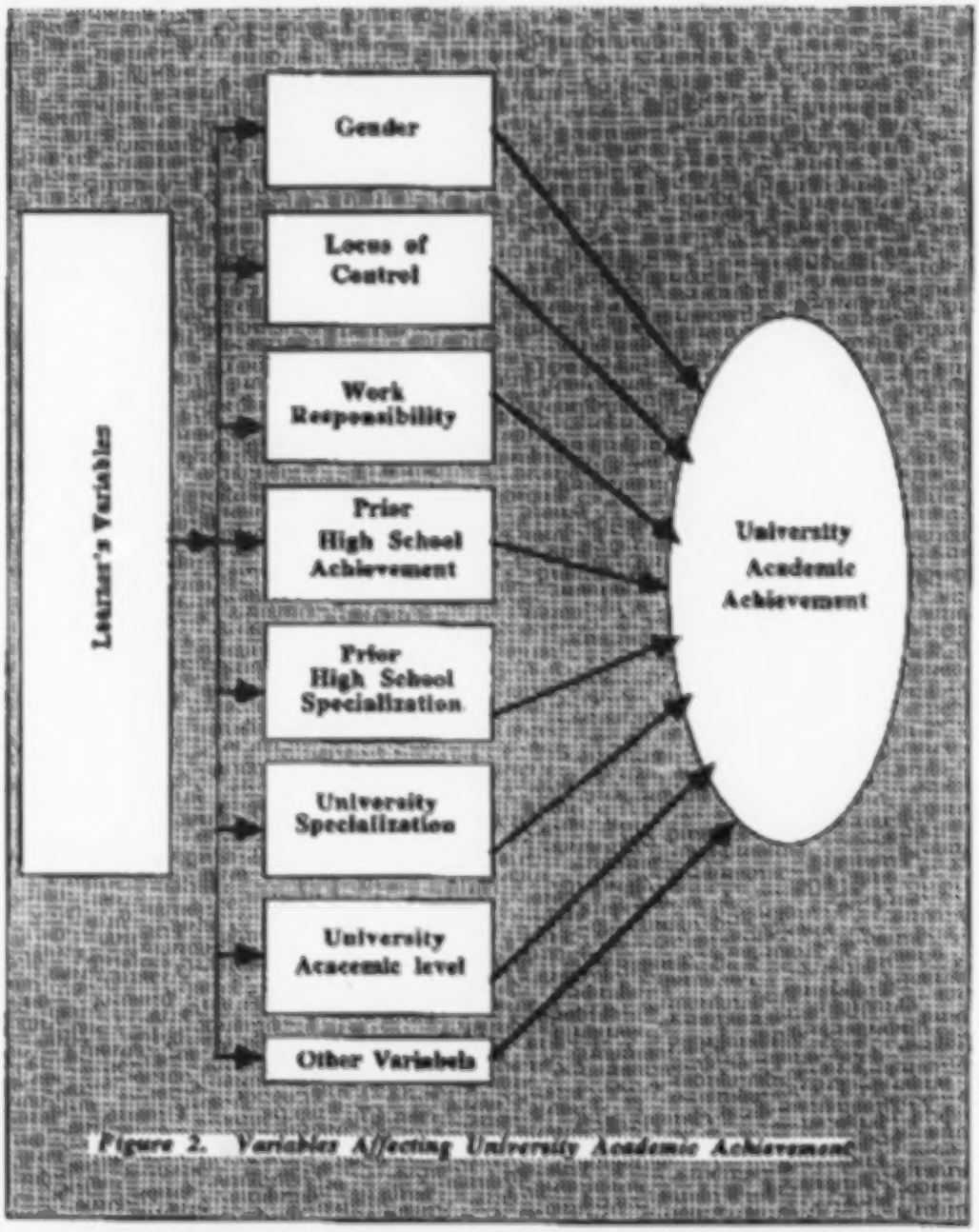

Figure 2. Variables Affecting University Academic Achievement

Therefore, the aim of this study was to investigate the relationship between learner variables and university academic achievement at a distance education university (Al-Quds Open University) and a conventional education university (An-Najah National University).

Importance of research

As mentioned above, we, in Palestine, are experiencing the distance education of Al-Quds Open University, and are careful to establish a high-quality education; therefore, we believe that conducting such research will help us- as instructional designers, to obtain information about our learners' characteristics/variables that might affect their academic achievement, and in what manner, hence, to use this information as a basis for modifying the

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current practice, such as how to modify instructional materials and teaching methods to accommodate the learners' characteristics. This will, consequently, help us to provide high quality education, and to achieve higher educational outcomes. We also hope to draw a model of interaction between learner variables and university academic achievement, and broaden it depending on the findings.

Methodology

Sample:

A random sample of 250 male and female students was taken from Al-Quds Open University branches located in three districts of the northern part of Palestine. It came arbitrarily as follows: Nablus (108), ToulKarem (67), and Jenin (75). In contrast, a random sample of 250 male and female students was taken from An-Najah National University (conventional education) which matched the Al-Quds Open University learners in their specialization (Literature, Science, Education, and Business Administration), and academic level (freshmen, sophomores, juniors, and seniors).

Procedure and Measures:

Rotter's Locus of Control Scale, plus a questionnaire which identified some of the learners' variables, were distributed to collect data from the samples drawn randomly from the registered students, (Fall semester, 1996/1997), from both Universities: Al-Quds Open University (250 students), and An-Najah National University (250 students). The data collected were related to learners' gender, locus of control, the average of government general high school exam (GGHSE), prior high school specialization (Literature, Science), university specialization (Literature, Science, Education, and Business Administration), University academic level (freshmen, sophomores, juniors, and seniors), and work responsibility (work, no work) (See, Figure 2 again). The returned questionnaires were (221) from Al-Quds Open University and (203) from An-Najah National University.

The results were compared to the reported university academic achievement which was expressed in the cumulative average obtained up to the Fall semester 96/97 in both types of University to see if there were a positive and significant relation between the learner variables and university academic achievement.

Results

A correlation coefficient by using (pearson r), and one-way analysis of variance by using "F-test", have revealed the following results:

First: Al-Quds Open University (distance education):

The academic achievement at Al-Quds Open University was significantly affected by the following factors:

1- Gender. It was in favor of females.
2- Prior high school academic achievement. The correlation between the average of government general high school exam and the University academic achievement was ($r=.36$, $p<.01$).
3- Prior high school specialization. It was in favor of science specialization .
4- University specialization. It was in favor of science and literature specializations.

The academic achievement at Al-Quds Open University, however, was not affected significantly by the following factors:

1- work responsibility,
2- Locus of control, or
3- University academic level.

Second: An-Najah National University (conventional education):

The academic achievement at An-Najah National University was significantly affected by the following factors:

1- Prior high school academic achievement. The correlation between the average of government general high school exam and the University academic achievement was ($r=.27$, $p< .01$).

2- Prior high school specialization. It was in favor of science specialization.
3- University specialization. It was also in favor of science specialization.

But the academic achievement at An-Najah National University was not affected significantly by the following factors:

1- Gender,
2- work responsibility,
3- Locus of control, or
4- University academic level (See, Table 1 for statistical information).

Third: A comparison between the results of Al-Quds Open University and An-Najah National University:

By doing a comparison between the results of both types of University: distance education versus conventional, we reached the following results:

1- The gender factor had a significant effect on the university academic achievement in a distance-but not in a conventional education setting. It was in favor of females.

2- The locus of control factor did not have a significant effect on the university academic achievement in both settings - distance and conventional education - but it was found that students of distance education were more internally oriented(E-I = 9.43) than their counterparts of conventional education (E-I = 11.35).

3- Prior high school academic achievement, which was expressed in GGHSE, had a significant effect on the university academic achievement in both settings: distance and conventional education (r=.36 versus r=.24, at P> .01).

4- Prior high school academic achievement, which was expressed in GGHSE, was higher for students in conventional education (82.2%) than their counterparts in distance education (70.1%).

5- Prior high school specialization had a significant effect on the university academic achievement in both settings: distance and conventional education. The significance was in favor of science specialization in both types of education.

6- The university specialization had a significant effect on the university academic achievement in both settings: distance and conventional education. The significance was in favor of science specialization in conventional education, and it was in favor of science and literature in distance education.

7- Each of the following factors had not had a significant effect on the university academic achievement in both educational settings. They are the locus of control, work responsibility, and university academic level (See, Table 1 again).

8- University academic achievement, which was expressed in the University cumulative average, was higher for conventional education students (77.2%) than for their counterparts in distance education (74.6%).

9- Based on the sample of this study, the number of students who held work responsibility was higher in distance education (53) than in conventional one (12). But the number of students in both settings distance and conventional education who did not work during their study was higher (296) than the number of students who did work (65).

Learner Variables		University Academic Achievement				
		Open University		Conventional University		Comments
Gender	Male	72.6%	** Sig.	77.1%	Non-sig.	
	Female	76.4%		77.2%		
Locus Of Control (LOC)	External - Internal	r = -.01	Non-sig.	r = +.02	Non-sig.	r. was between (LOC) and Univ. grade average
Work Responsibility	Yes	73.3%	Non-sig.	76.7%	Non-sig.	
	No	75.1%		77.3%		
Prior High School Specialization	Science	77.5%	** Sig.	78.3%	** Sig.	
	Literature	73.1%		75.2%		
Prior High School Achievement	Government General High School Exam (OGHSE)	r = .36	* Sig.	r = .27	* Sig.	r. was between (OGHSE) and Univ. grade average
University Specialization	Science	76.9%	** Sig.	79.2%	** Sig.	
	Literature	76.6%		76.7%		
	Education	73.6%		76.8%		
	Business Administration	71.33%		74.5%		
University Academic Level	Freshmen	73.7%	Non-Sig.	No grades reported	Non- Sig.	
	Sophomores	74.5%		76.8%		
	Juniors	76.6%		77.2%		
	Seniors	76.8%		77.7%		

** P< .001
* P< .01

Table1: The impact of learner variables on University academic achievement in a Distance-versus a Conventional education setting.

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Discussion and Recommendations

It seems that the most important result of this study was that academic achievement in both types of university, open and conventional one, was affected similarly by the same variables of learner, with a slight difference. This is true at least in the Palestinian case. We could say according to the findings of this research that the learners who had high grades in high school with a scientific background are the most successful students in both types of University. Even at the University levels, learners who specialized in science achieved higher grades than those who specialized in education, business administration, or literature. While it is impossible to direct all students to specialize in science for many reasons including the integration of the society, it is worthwhile to modify our curriculum, either at high school or university level, to include more topics in science besides other topics. It seems that the topics of science with all symbols, formulas, and logical issues have a positive effect in activating deep mental processes than the other topics, thus increasing students' learning achievement. Well, more research is recommended on this issue to confirm such a result.

The interesting result is that the gender factor was affecting university academic achievement just in a distance education setting not in a conventional one. It was in favor of females. This result was supported by Darwazeh and Abu-Amsheh (1993) when they found that the academic achievement of females was higher than males who study in Al-Quds Open University but not in An-Najah National University, the conventional one. It seems that the nature of the distance educational system, which doesn't demand that their learners attend the university on a systematic schedule helps females more than males to feel free in organizing their schedule at their convenience, so they can manage the house responsibility and their studies at the same time. This could be true especially for married females who hold responsibilities for their homes and families. However, more research is recommended on this issue.

With respect to the prior high school academic achievement which is expressed in GGHSE, it seems that this factor is a good predictor of the university academic achievement either in the Open University or in the conventional one. At the same time, it does not hurt to use other factors besides the GGHSE to predict university academic achievement, such as the university entrance exam, or ability tests, especially in the conventional universities which require their applicants to meet certain conditions in order to be university candidates.

With respect to the locus of control, the study found that the Open University learners were more internally oriented (E-I = 9.43) than the learners of the conventional one (E-I = 11.35). This result does make sense, because most of previous research summarized by Wilson (1991), found that the distance learners were mainly field independents rather than field dependents. This means, to some extent, that they are self-directed learners and have control over their learning goals, strategies, and structure. Well, this kind of result needs to be tested further.

Looking at the result which indicated that the academic achievement at An-Najah National University was higher (x= 77.2%) than the academic achievement at Al-Quds Open University (x=74.6%), it makes sense at least in Palestine, because the conventional universities in Palestine demand their applicants to meet certain conditions in order to be university candidates, and one of these conditions is a high average of GGHSE, whereas Al-Quds Open university does not demand such a condition. Accordingly, the conventional university learners are considered to be elite learners from the beginning, in terms of their academic achievement, whereas it is not the case in Al-Quds Open University. But the surprising result is that the academic achievement of learners who entered An-Najah National University with a GGHSE average of (82.2%) has been declined after entering the University and became (77.2%), whereas the academic achievement of learners who entered Al-Quds Open University with a GGHSE average (70.1%) has been enhanced after entering the University (74.6%). This result could be due to the nature of the instructional system at Al-Quds Open University which gives learners more freedom and control over their learning, whereas the nature of the instructional system at An-Najah National University gives teachers more responsibility and control over learners' learning. It is well known in education that the learner-centered system is more effective than the teacher-centered system especially at higher level of learning. This kind of observation leads us to raise a recommendation to the conventional university administrators in Palestine to modify their instructional system and let the teachers give their students more opportunities to get involved in the learning process, thus to interact effectively in the instructional process, than is now the case..

To sum up, more research is recommended to investigate other learner variables, such as academic needs achievement, learning styles, time commitment, perception to the instructional materials, etc., and to investigate some of the external variables related to the instructional environment and which have an influence on students' academic achievement.

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